IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA

Richard G. Summers, Plaintiff, v. County of Charleston and/or The Charleston County Sheriff's Department, Deputy R. Stern, Deputy M. Sharpe, Deputy H.E. Bohlander, Defendants.	Civil Action No.: 2:10-cv-03291-RMG-BM

Exhibit U

Sleep Medicine Report

Case: Richard G. Summers vs City of Charleston, et al.
Case No.: 2:10-CV-03291-RMG
Preparer: Wayne C. Vial, MD
Date: 11/4/2011

Introduction: On the night of January 9, 2009, after consuming an acknowledged five beers, Richard G. Summers left his home clad only in his underwear. He broke into his own tractor trailer, pushed his wife's automobile out of his way and onto a neighbor's yard, and drove out of his neighborhood. He pulled his truck behind the cruiser of a Charleston county deputy and approached the deputy's car, prompting the officer to draw his weapon. Mr. Summers then proceeded to a nearby convenience store and spoke to a city of Charleston police officer. He then returned to his vehicle and, despite efforts by the two officers to stop him, drove his truck into the deputy's cruiser, then pushed another vehicle into an intersection, causing a collision with yet another vehicle. He then drove to a nearby Burger King and ultimately crashed his truck into a dumpster. He was apprehended by police and brought to the Medical University, then to the Charleston County Detention Center. Criminal charges were filed, but he was ultimately found not guilty by reason of insanity, with the determination of the court being that he was sleepwalking during the events in question. Subsequently Mr. Summers has filed a lawsuit against the City of Charleston and several of the police officers involved in this incident. I have been requested by Sandra Senn, Esquire, defense counsel for the police officers, to prepare a report on the events of January 9, 2009, from the standpoint of a specialist in sleep medicine.

Sleep-Related Violence: Violence arising out of sleep may be caused by dissociative states and other psychiatric conditions; nocturnal seizures; and two specific sleep disorders, sleepwalking, or somnambulism, and REM sleep behavior disorder (confusional arousals and sleep terrors can also result in violence, but these are typically of very short duration and not applicable to the case in question). Mr. Summers was evaluated by a neurologist, Dr. Connie Tsang, with MRI and electroencephalography showing no evidence of significant neurologic abnormality such as seizures disorder. Multiple psychological and psychiatric evaluations were undertaken, with the finding of several psychiatric diagnoses, none of which would be expected to lead to sleep-related violence. The conclusion of the forensic psychiatrists who evaluated him was that Mr. Summers committed the acts of January 9, 2009, while sleepwalking. Alcohol has often been implicated in the genesis of sleepwalking violence.

Diagnostic Criteria for Sleepwalking: The *International Classification of Sleep Disorders, Second Edition*, defines the characteristics of sleep disorders. The diagnostic criteria for sleepwalking are as follows:

A. *Ambulation occurs during sleep.*
B. *Persistence of sleep, an altered state of consciousness, or impaired judgment during ambulation is demonstrated by at least one of the following:*
    i. *Difficulty in arousing the person*
    ii. *Mental confusion when awakened from an episode*
    iii. *Amnesia (complete or partial) for the episode*
    iv. *Routine behaviors that occur at inappropriate times*
    v. *Inappropriate or nonsensical behaviors*
    vi. *Dangerous or potentially dangerous behaviors*
C. *The disturbance is not better explained by another sleep disorder, medical or neurological or mental disorder, medication use, or substance use disorder.*

Criteria for Sleepwalking-Related Violence: It must be noted that it can never be determined with certainty, after the fact, whether a given episode was due to sleepwalking. Nevertheless, the forensic sleep community has put forth guidelines to evaluate this likelihood in specific cases. The presence of specific criteria increases the probability that a sleep-related event resulted from sleepwalking, but can never prove this to be the case. These criteria have been described by Bornemann and Mahowald in "Sleep Forensics," in Kryger, Roth, and Dement, *Principles and Practice of Sleep Medicine*:

1. *There should be reason by history to suspect a bona fide sleep disorder. Similar episodes, with benign or morbid outcome, should have occurred previously. (Disorders of arousal may begin in adulthood.)*

2. *The duration of the action is usually brief (seconds), though action of longer duration (minutes) does not necessarily exclude a sleep disorder or a sleep-related behavior. The action is usually abrupt, immediate, impulsive, and senseless—without apparent motivation. Although ostensibly purposeful, it is completely inappropriate to the total situation, out of (waking) character for the individual, and without evidence of premeditation.*

3. *The victim is someone who merely happened to be present, usually in close proximity, and who may have been the stimulus for the arousal. Sleepwalkers rarely, if ever, seek out victims.*

4. *Immediately following return of consciousness, there is perplexity or horror, and there is no attempt to escape, conceal, or cover up the action. There is evidence of lack of awareness on the part of the sleepwalker during the event. There is usually some degree of amnesia for the event, but this amnesia need not be complete.*

5. *In the case of sleep terrors, sleepwalking, or sleep inertia, the act may occur upon awakening (rarely immediately upon falling asleep) and usually at least 1 hour after sleep onset. It occurs upon attempts to awaken the subject. The action has been potentiated by sedative–hypnotics or by prior sleep deprivation.*

1. Mr. Summers reported to Susan C. Knight, PhD, a history of sleepwalking behavior in childhood and once as an adult. Subsequently, he acknowledged in his deposition with Sandra Senn that the adult episode, in which he urinated in a corner of a room, was precipitated by alcohol. The history of childhood sleepwalking was apparently uncorroborated by other family members.

2. The duration of the actions in question appears to have been about 30 minutes, longer than most such reported episodes. While the action was not abrupt and immediate, it does appear to have been senseless and without apparent motivation. The behavior was inappropriate to the total situation (there was no danger to Mr. Summers' son) and reportedly out of waking character of the individual: going outdoors clad only in his underwear and breaking his own truck window exemplify this.

3. The victims in this incident were the occupants of automobiles which happened to be in his way in his efforts to reach the Burger King and save his son. Potential victims included the law enforcement officers attempting to divert him from his purpose and restrain him.

4. Mr. Summers reported little recall for the event both immediately after it and later, consistent with the usual amnesia for the event after sleepwalking (or with alcoholic blackout).

5. The timing appears to be appropriate for sleepwalking in this case. The events apparently occurred about an hour after Mr. Summers went to bed. There is no mention of sedative-hypnotic use before bedtime, but Mr. Summers reported that he had not slept well the preceding week and so was sleep deprived. His mother reported that he had told her during the week preceding the event that he was not sleeping well.

Mr. Summers reported consuming five beers in the several hours prior to the event in question. Alcohol consumption is also often mentioned as a precipitating factor for sleepwalking events. However, there is no scientific data convincingly implicating alcohol in induction or exacerbation of sleepwalking events, particularly in those with chronic alcohol abuse. Alcohol ingestion can result in actions associated with amnesia for the event, alcoholic blackouts.

Sleep Evaluation: Although Mr. Summers denied the presence of "sleep disorders, pauses in breathing while asleep, daytime sleepiness, loud snoring" on examinations to

renew his Commercial Driver's License in 2005, 2007, and 2008, his primary physician on at least two occasions (apparently 9/17/07 and 12/21/07) made a referral to Complete Health Sleep Diagnostics for a sleep study to evaluate him for sleep apnea. The same referral form was used each time. Symptoms listed on that referral form include "Excessive daytime somnolence; Loud, irregular snoring; Un-refreshing sleep; and Frequent awakenings." Complete Health subsequently notified Dr. Scott's office after each referral that the requested study had not been scheduled. This is important, because sleep apnea can serve as a trigger for sleepwalking by waking a person during slow-wave or deep sleep, the stage of sleep from which sleepwalking originates. Had he had his sleep apnea diagnosed and treated earlier, the events of January 9, 2009, may never have occurred.

Mr. Summers was evaluated for sleep apnea twice after the index event. The first nocturnal polysomnogram ("sleep study") was performed at Aiken Regional Medical Center on 2/5/09. He slept with a reduced sleep efficiency of 69% with a sleep latency of 52.5 minutes. He spent 20.6% of total sleep time in Stage N3 sleep and 17% in Stage R. Two obstructive apneas were recorded, yielding an apnea-hypopnea index of 0.5, which is well within normal limits. Arousal index was 6 per hour, and periodic limb movement index was 6.1, minimally abnormal. The patient was noted to talk and kick during REM sleep. Significant findings included a normal percentage of slow-wave sleep, from which sleepwalking arises; no abnormal increase in the number of arousals, which can trigger sleepwalking; and no significant sleep disorder such as obstructive sleep apnea or periodic limb movement disorder. The presence of talking and kicking during REM sleep raises the possibility of REM sleep behavior disorder, another sleep pathology which can result in sleep-related violence. No further follow-up was obtained on this finding in Aiken.

A second diagnostic nocturnal polysomnogram was performed at Carolinas Medical Center--NorthEast on 3/7/09. On this study, Mr. Summers slept with a sleep efficiency of 86.7%, which is normal. He had 17.4% REM sleep, but no Stage N3 or slow-wave sleep. In contrast to the prior study, he had an apnea-hypopnea index of 39.7, indicative of severe obstructive sleep apnea. No mention was made by the technologist recording the study, by the scorer, or by the interpreting physician of abnormal movements during REM sleep consistent with REM sleep behavior disorder.

Without review of the original raw data, it is impossible to reconcile the glaring differences between these two diagnostic studies. The first showed a normal amount of slow-wave sleep, no sleep apnea, and findings suggestive of REM sleep behavior disorder; the second demonstrated a total absence of slow-wave sleep, the presence of severe obstructive sleep apnea, and no evidence to suggest the presence of REM sleep behavior disorder. The findings could hardly have differed more with regard to elements pertinent to this case.

A third nocturnal polysomnogram with CPAP titration was conducted at Carolinas Medical Center--NorthEast on 4/13/2009. Again, no slow-wave sleep and no movements during REM sleep occurred. CPAP abolished all respiratory events at all pressures tested, a distinctly unusual finding. Mr. Summers was started on CPAP therapy then, and apparently continues on it today.

It is impossible to determine with absolute certainty whether the events of January 9, 2009, were due to sleepwalking. While some features of this behavior were consistent with sleepwalking, the role of alcohol in inducing these events cannot be discounted. Although alcohol is often invoked as a precipitating factor for sleepwalking behavior with violence, a recent review of the medical literature lends little credence to this notion, especially in subjects with a history of chronic alcohol abuse. In chronic alcohol abusers, ingestion of alcohol causes a reduction in the amount of slow-wave sleep, the stage of sleep from which sleepwalking arises. Given Mr. Summers' documented, longstanding history of alcohol abuse; the fact that he had engaged in inappropriate behavior arising from sleep and precipitated by alcohol on at least one occasion previously, when he urinated on the floor of his room; and the vastly higher incidence of alcoholic blackout as compared to sleepwalking-related violence, the most likely explanation for the events of the night in question is that Mr. Summers acted under the influence of alcohol and suffered an alcoholic blackout. Unfortunately, a blood alcohol level was not obtained on the night of January 9, 2009.

Additional Considerations If These Events Were Due to Sleepwalking: Auditory, visual, and other sensory input and processing can be impaired in the sleepwalking state. Subjects may not recognize persons known to them or respond to commands, and have been reported to be relatively insensitive to pain. The latter may partially account for the ineffectiveness of tasering in this case, and therefore its repeated use. Similar considerations could apply to the headbanging in the police cruiser and the pain associated with running with leg irons on.

There are many cases on record in which sleepwalkers have caused significant injury or death to themselves or others. In this specific case, injuries did occur to several persons encountered by Mr. Summers, presumably because they stood between him and his goal of reaching his son. Typically victims of such violence are those encountered incidentally by the sleepwalker, those who attempt to thwart his purpose, or those who attempt to arouse or subdue him. Therefore, until Mr. Summers was completely subdued, he represented an ongoing danger to himself, nearby civilians, and the law enforcement officers involved.

Sleepwalking can entail prolonged, complex, and purposeful actions which can appear to others to be volitional. Nevertheless, such events are quite rare in everyday experience. Thus it would be very unlikely for police officers or other observers to be able to ascertain that these events constituted sleepwalking. In fact, even in the setting of the

sleep center with an experienced technologist observing, sleepwalking can only be diagnosed with certainty by continuous electroencephalographic monitoring. Mr. Summers himself appeared to acknowledge the difficulty that others would have in differentiating his sleepwalking from voluntary behavior during his interview with Dr. Halavonich on January 16, 2009. He told her that he was not sleeping because he was afraid he would have another sleepwalking event and the officers at the detention center would injure him: Q: *Are you afraid of the officers?* A: *Yes, because nobody would know. I mean, how would they know that he's, I'm off in that state or whatever again? How would they know that?*

Data Reviewed In Preparing This Report

DATE OF EVENT	ITEM(S) REVIEWED
Oct 7, 2005	Medical Examination Report for Commercial Driver Fitness Determination
Oct 7, 2005	Office Note by Brian C. Griffin PA
Sep 17, 2007	Office Note by Valerie Scott MD
Oct 1, 2007	Medical Examination Report for Commercial Driver Fitness Determination
Nov 9, 2007	Complete Health Sleep Study Status Notice
Dec 21, 2007	Office Note by Valerie Scott MD
Dec 21, 2007	Complete Health Letter of Medical Necessity
Feb 4, 2008	Complete Health Sleep Study Status Notice
Sep 22, 2008	Medical Examination Report for Commercial Driver Fitness Determination
Jan 9, 2009	EMS Report, Charleston County EMS
Jan 9, 2009	Medical Records, Emergency Department, MUSC
Jan 9, 2009	Multiple Arrest Warrants and Affidavits
Jan 10, 2009	Incident Report, Charleston County Sheriff's Office, Deputy W. Hanna
Jan 10, 2009	Intake Screening and Receiving, Charleston County Detention Center
Jan 10, 2009	"Distraught man rams tractor trailer into police cruiser and two other cars," Charleston Post and Courier
Jan 11, 2009	"Authorities relate odd encounter," Charleston Post and Courier

DATE OF EVENT	ITEM(S) REVIEWED
Jan 14, 2009	Video of interview of Richard G. Summers at Charleston County Detention Center by Rikki Lynn Halavonich, MD
Jan 14, 2009	Charleston County Detention Center Clinic Note
Jan 16, 2009	Video of interview of Richard G. Summers at Charleston County Detention Center by Rikki Lynn Halavonich, MD
Jan 22, 2009	Visit note by Valerie Scott, MD at Charleston County Detention Center
Jan 23, 2009	Letter by Valerie Scott MD
Jan 29, 2009	Psychiatric Evaluation by Rikki Lynn Halavonich, MD
Feb 4, 2009	Admission History and Physical and associated lab, radiology, and ultrasound reports, Aiken Regional Medical Center
Feb 5, 2009	Polysomnogram report, Aiken Regional Medical Center
Feb 6, 2009	Letter "To Whom It May Concern" by Rikki Lynn Halvaonich, MD
Feb 10, 2009	Consent Order to Modify Bond
Feb 17, 2009	Admission History and Physical, Carolinas Medical Center-Northeast
Feb 17, 2009	CPAP Titration Study Report and Technician's Log Sheet, Carolinas Medical Center-Northeast
Feb 19, 2009	Initial Psychological Assessment by Charles Schmittdiel, PhD
Feb 19, 2009	Psychological Assessment by Charles Schmittdiel, PhD
Feb 20, 2009	New Sleep Patient Evaluation by Connie Tsang, MD, and associated laboratory results
Feb 27, 2009	Discharge Summary, Carolinas Medical Center-Northeast
Mar 6, 2009	MRI Brain Report, NorthEast Neurology
Mar 6, 2009	Electroencephalogram Report, Carolinas Medical Center-Northeast
Mar 7, 2009	Nocturnal Polysomnogram Report and Technician's Log Sheet, Carolinas Medical Center-Northeast
Apr 15, 2009	Initial Psychiatric Evaluation and letter to Rikki Lynn Halavonich, MD by Fred W. Caudill, MD
Apr 22, 2009	Sleep Patient Followup by Connie Tsang, MD
May 18, 2009	Office Note by Fred W. Caudill, MD
Jun 5, 2009	Letter to Andrew Savage by Fred W. Caudill, MD
Jul 16, 2009	Sleep Patient Followup by Connie Tsang,77 MD
Nov 25, 2009	Criminal Responsibility and Capacity to Conform Evaluation

DATE OF EVENT	ITEM(S) REVIEWED
Apr 9, 2010	Finding of not guilty by reason of insanity, Initial order of commitment for period not to exceed 120 days
Apr 26, 2010	Order in the Court of General Sessions Ninth Judicial Circuit
Aug 10, 2011	Forensic Psychiatric Expert Report
Sep 9, 2011	Deposition of Chandler Grimett
Sep 26, 2011	Report of Neurological/Neuropsychological Evaluation by L. Randolph Waid, PhD
Sep 30, 2011	Deposition of Richard Gregory Summers, McPherson vs. Summers et al.
Oct 24, 2011	Deposition of Richard G. Summers, Summers vs. City of Charleston, et al.
Nov 2, 2011	Forensic Evaluation of Records by Diana Mullis, MD

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11/4/11
Date submitted